INTERNATIONAL SOLDIER SYSTEMS CONFERENCE AND EXHIBITION 2004

DoD Combat Feeding Global Asset Visibility- Radio Frequency Identification (RFID) Technical Demonstration

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Combat Feeding Directorate

The Science Behind the Warrior:

Yesterday, Today and

Briefing Overview

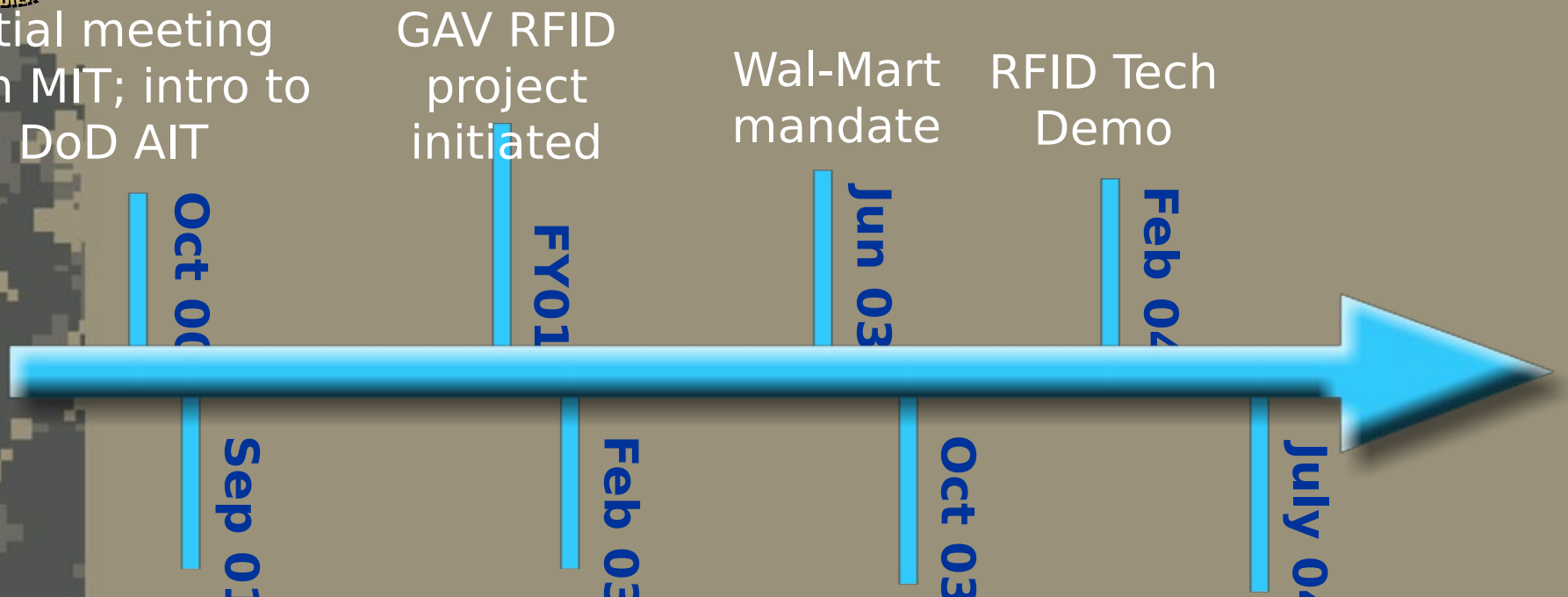
- **Intro and History of the CFD RFID Program**
  - Mission
  - CFD RFID Program
- **Global Asset Visibility-RFID Tech Demo**
  - Tech Demo Description
  - Discussion of Lessons Learned
- **Future Endeavors**
  - Ongoing RFID Projects
  - Future Needs and Challenges

to deep space…
from deep sea…

Developed by Natick.

- **EVERY combat ration…**
- **EVERY piece of food service equipment…**
- **EVERY field feeding system…**

Logistics: The Path to EPC Adoption



"…the Combat Feeding Directorate is way out ahead of everyone else in DoD…"

The Honorable Michael Wynne
USD AT&L, 16 July 2003

GAV-RFID Tech Demo Team

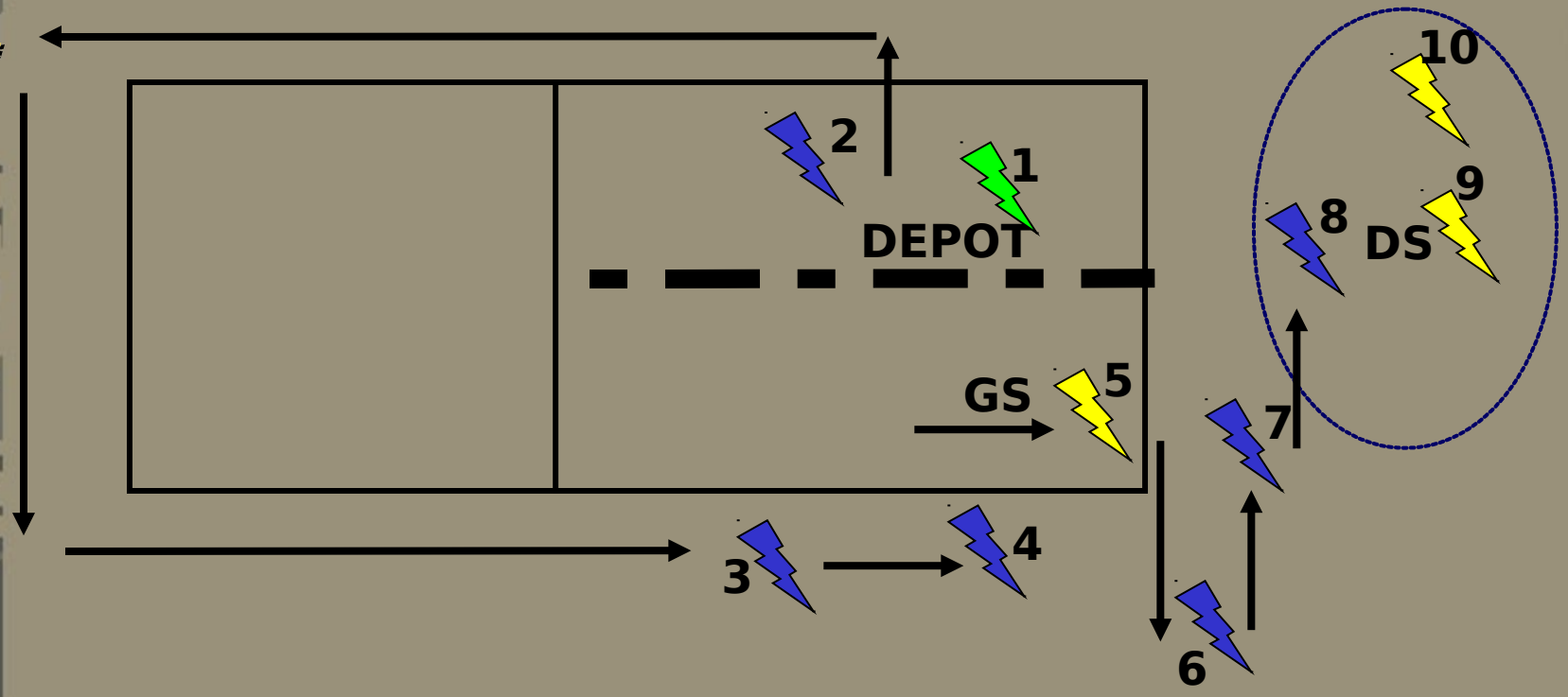
- **NSC CFD - DLA - ORNL – MIT**
- **Broad Agency Announcement**
  - –Awarded Contract in February 2003
- **OATSystems Inc. Systems Integrator**
- **Alien Technology Tags and Readers**
  - –Down selection based on shake down tests and EPC compliance
  - –Stationary Portals, Portable Carts, and Forklift Readers Used
  - –Static Demo of Aggregation to Savi 433 MHz Tags
- **Handheld 915 MHz Reader**
  - –Several Companies Promised… Symbol Delivered

Tech Demo Objectives

- **Objectives were to demonstrate:**
  - Ability of RFID to track inventory in an end-to-end supply chain.
  - Ability of sensor equipped RFID tags to provide shelf-life data.

- **Value is to provide:**
  - Objective evaluation of the practical application of passive RFID technology in the DOD logistics environment.
  - Analysis of passive RFID application in DOD supply chain to support OSD implementation policy.

Product Flow – DDJC Whse 29

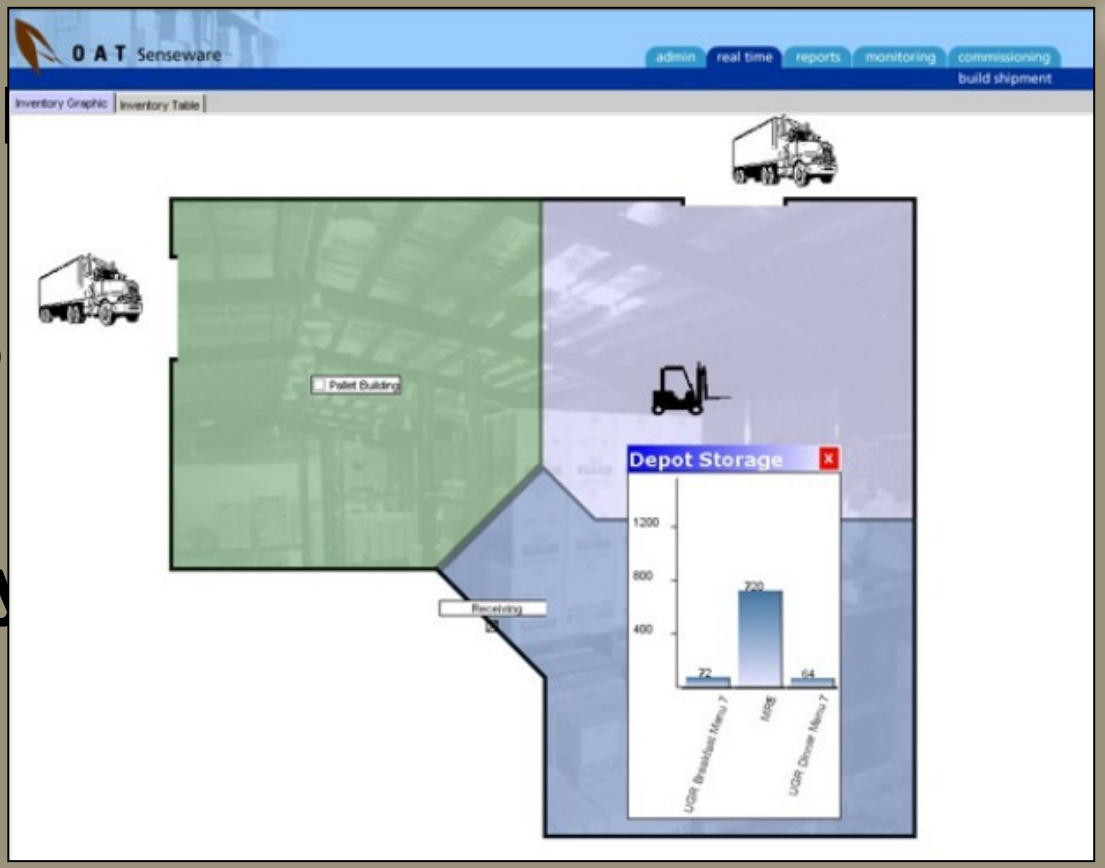


1. Pallet Building
2. Container Loading
3. GS Entry
4. Quality Update
5. GS Issue Portal
6. Flatbed Loading
7. GS Exit
8. DS Entry
9. DS Issue Portal
10. Unit Issue

915 MHz
2.45 GHz
Both

Real-Time Inventory Data

- Web Accessi
- Bar Chart Fo
- User Friendly



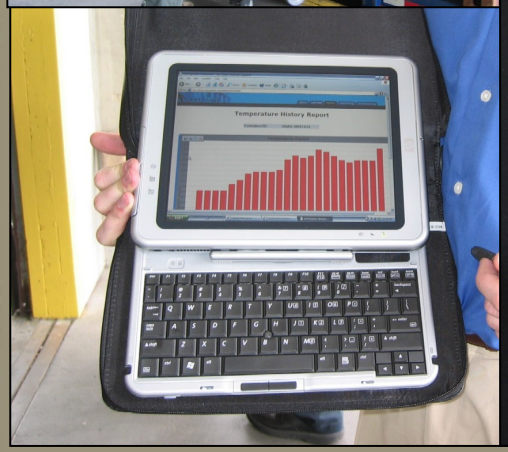
Station 1 – Depot Operations: Case Commissioning and Pallet Building

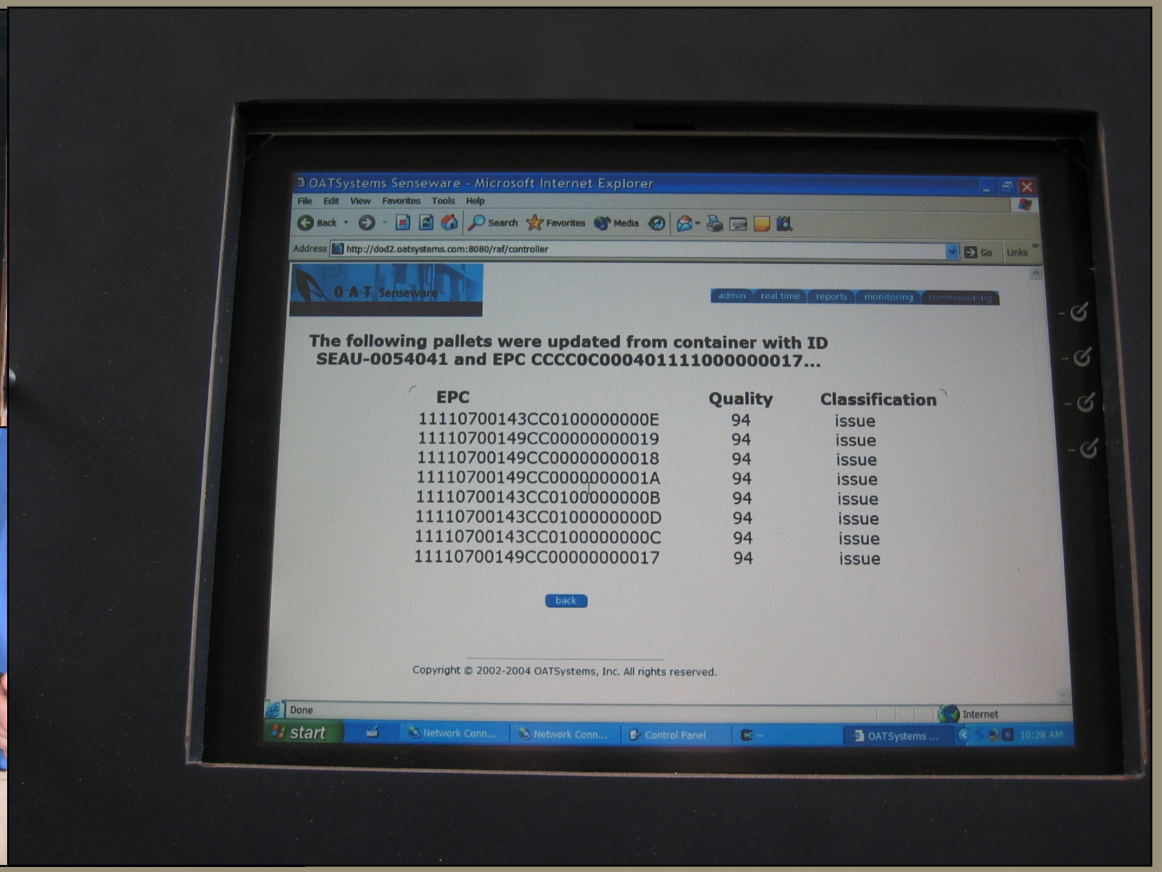
Station 2 – Depot Operations: Container Loading

RFID and Wireless Enabled Forklift

Station 3 – GS Supply Point Operations:
GS Supply Point Entry

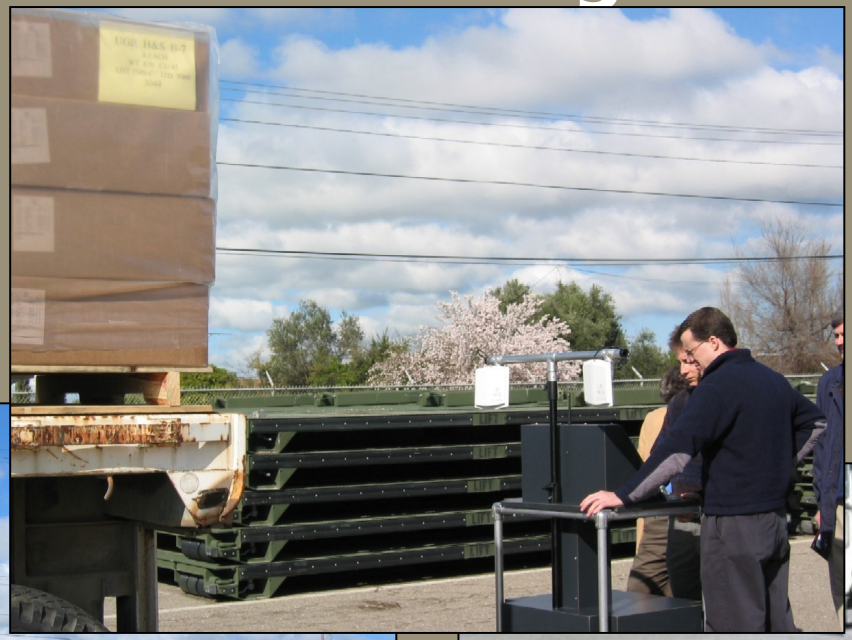
Station 4 – GS Supply Point Operations: Calculating a Quality Index





Station 5 – GS Supply Point Operations: Issue Portal

Station 6 – GS Supply Point Operations: Flatbed Trailer Loading



Station 7 – GS Supply Point Operations: GS Supply Point Exit

- Identical Hardware to Entry
- Near Instantaneous Reads
- GS Inventory Decremented

Station 8 – DS Supply Point Operations:
DS Supply Point Entry

Station 9 – DS Supply Point Operations: Issue Portal

Station 10 – DS Supply Point Operations: Unit Issue

Preliminary Results

- **High Success Rate in Writing Passive Tags**
- **Case & Pallet Tagging a Moderately Mature Process**
- **Shipping Operations with BAP Tags Still Immature**
  - Container and Trailer Loading Posed the Most Challenges
  - Wireless Connectivity and Interference Issues
- **In-Transit Visibility Worked Very Well**
- **Temp Sensor & Shelf-Life Model was a Success**
- **Seamless Integration is Essential**

Quotable

"The work the entire Combat Feeding team has done in our RFID pilots is truly leading edge. Thanks to their efforts, the DoD continues its global leadership in RFID applications. The recent work at DDJC continues to demonstrate the value and opportunities for transforming the DoD supply chain. Their leadership and commitment to technical and operational excellence are a tremendous asset to our nation and our warfighters".

Brad Berkson
DUSD LMR (Acting)
28 February 2004

“I commend the Natick Soldier Center Combat Feeding Directorate for successfully conducting the definitive RFID proof of principle to dramatically enhance DoD’s capability for end to end logistics.”

Alan Estevez
DUSD LMR SCI
26 February 2004

Quotable

"The results of this RFID demo have made it clear to me that it is the next logical step in the pursuit of logistical performance. Upon refinement, I believe that RFID will certainly become the industry standard for streamlining the supply chain and will significantly enhance customer support."

Rene Narnajo
Materials Handler (Fork Lift Operator)
DDJC
26 February 2004

Where do we go from here?

- **JSN Projects**
  - Tamper Evident Packaging
  - Application of Passive RFID for Ration Assembly
- **Leveraged Funding**
  - BAA Contract – Tamper Evident and Traceable Packaging
  - Navy Automated Inventory SBIR
- **S&T Platform for Technology Drop-ins**
  - Tamper evident applications
  - Temperature tag refinement and reader development
  - Continued sensor integration
- **Advice and Assistance for Initial Implementers**
  - DLA-G4 MRE RFID implementation (Assembler-to-NTC)
  - DOD RFID Implementation and Oversight Working Group

Future Challenges

- Hardened Deployable Systems
- Linkage to Legacy Automated Information Systems
- Interoperability Between all Tags and Readers
- Increased Sensor Capabilities
- Cost Considerations

Dept of Defense RFID Policy

- **Final Policy Issued 30 July 04**
- **Active RFID Business Rules**
  - All Activities Stuffing Containers or Building Pallets
  - DoD Cargo Shipped OCONUS
- **Passive RFID Business Rules**
  - Frequency, Tag Type, & Data Construct
  - Case, Pallet, and Unit (when UID required) Level
  - EDI Transaction Capabilities
- **Supplier Implementation Plan**
  - Staggered Timeline Beginning January 1, 2005 (Delayed to Mar 05)
  - Targeted Commodities & Destinations

Meeting Today's Challenges.....
...Providing Tomorrow's Solutions